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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,203	07/29/2003	Thomas Thisted	10062.210-US	1994

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NOVOZYMES NORTH AMERICA, INC.
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SUITE 1600
NEW YORK, NY 10110

EXAMINER

PROUTY, REBECCA E

ART UNIT	PAPER NUMBER
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1652

MAIL DATE	DELIVERY MODE
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05/14/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/630,203

Applicant(s)

THISTED ET AL.

Examiner

Rebecca E. Prouty

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41,43-49 and 51-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 41, 43-49,51-57 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

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A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/4/08 has been entered.

Claims 1-40, 42, and 50 have been canceled. Claims 41, 43-49, and newly presented claims 51-57 are at issue and are present for examination.

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 51-57, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution of at a position corresponding to position 170 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.
- II. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90%

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homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 49 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

III. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 60 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

IV. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 104 in SEQ ID NO:8, and wherein the variant

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has alpha-amylase activity, classified in class 435, subclass 202.

V. Claims 41, 43-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 132 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

VI. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 161 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

VII. Claims 41, 43-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position

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corresponding to position 170 and a substitution at a position corresponding to position 176 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

VIII. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 179 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

IX. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 180 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

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- X. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 181 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.
- XI. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 183 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.
- XII. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position

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170 and a substitution at a position corresponding to position 200 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XIII. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 203 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XIV. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 204 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

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XV. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 207 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XVI. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 212 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XVII. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position

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170 and a substitution at a position corresponding to position 237 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XVIII. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 239 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XIX. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 250 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

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XX. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 280 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XXI. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 298 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XXII. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position

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170 and a substitution at a position corresponding to position 318 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XXIII. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 374 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XXIV. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 385 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

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XXV. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 393 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XXVI. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 402 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XXVII. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position

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170 and a substitution at a position corresponding to position 406 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XXVIII. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 427 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XXIX. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 430 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

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XXX. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 440 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XXXI. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 444 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XXXII. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position

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170 and a substitution at a position corresponding to position 447 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

XXXIII. Claims 41, 43, 44, 46-49, and 51-56, drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and a substitution at a position corresponding to position 482 in SEQ ID NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202.

Remaining Groups: Claims 41, 43-49, and 51-56 drawn to a variant of an alpha-amylase, wherein the variant comprises an amino acid sequence having at least 90% homology to SEQ ID NO.8 and consisting of a substitution at a position corresponding to position 170 and two or more additional positions selected from the group of those corresponding to positions 49, 60, 104, 132, 161, 176, 179, 180, 181, 183, 200, 203, 204, 207, 212, 237, 239, 250, 280, 298, 318, 374, 385, 393, 402, 406, 427, 430, 440, 444 447 and 482 in SEQ ID

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NO:8, and wherein the variant has alpha-amylase activity, classified in class 435, subclass 202. Note in view of the extremely large number of distinct inventions in each of these groups the examiner has not attempted to list each group individually. If applicants elect any of these groups they should specifically delineate the combination of particular substitutions which must be present in the variant.

The inventions are distinct, each from the other because of the following reasons:

The inventions of all groups are directed to related protein variants. The related inventions are distinct if: (1) the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect; (2) the inventions do not overlap in scope, i.e., are mutually exclusive; and (3) the inventions as claimed are not obvious variants. See MPEP § 806.05(j). In the instant case, the inventions as claimed each have a materially different design as each one has a different structure encompassing distinct mutations which each can produce distinct effects on the overall structure and function of the protein. Furthermore, the inventions as claimed do not encompass overlapping subject matter and there is nothing of record to show them to be obvious

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variants. Furthermore, each group will require a separate search as disclosure of a mutation at one position of a basic protein structure in no way makes obvious or suggests mutations at different positions of the same protein such that art teaching a variant of one group will not be applicable to variants of the remaining groups.

Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

- (a) the inventions have acquired a separate status in the art in view of their different classification;
- (b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;
- (c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);
- (d) the prior art applicable to one invention would not likely be applicable to another invention;

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(e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

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Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rebecca E. Prouty whose telephone number is 571-272-0937. The examiner can normally be reached on Tuesday-Friday from 8 AM to 5 PM. The examiner can also be reached on alternate Mondays

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nashaat Nashed, can be reached at (571) 272-0934. The fax phone number for this Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

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information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Rebecca Prouty/
Primary Examiner
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